

# **Massachusetts Community and State College Recycling: Mount Wachusett Community College**

FINAL REPORT  
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## **Mount Wachusett Community College (Table 6)**

Mount Wachusett Community College can take advantage of its proximity to North Shore Recycled Fibers' Fitchburg mill to collect a full mix of cardboard and mixed paper. We recommend purchase or lease of a breakaway compactor, which should allow MWCC to capture an additional 15-20% of its waste stream at a net savings of \$3,200/year (with compactor lease) or \$7,400/year (with compactor purchase), compared to its current recycling program which relies on collection in open containers.

Additionally, we recommend that MWCC should start to recycle beverage and food containers (which are not currently recycled), using a dedicated rolloff container. We project that the cost of this program will be about \$2,600 per year with purchase of a rolloff, or \$4,400 per year if the rolloff is leased.

To implement these programs, we also recommend that MWCC should purchase about \$3,200 in new recycling supplies, including deskside bins and wheeled containers.

If these recommendations are implemented, we project that MWCC's recycling rate can more than double, from its current 12% to 25-30%.

**Mount Wachusett Community College**  
**Recycling Status, Issues, and Opportunities**  
**Mt. Wachusett Community College**

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**Current Status**

Mt. Wachusett Community College (MWCC) is aggressive and successful at recycling cardboard, electronic equipment, wood waste (which is consumed in an on-campus wood-energy plant), universal wastes, and surplus property. MWCC recycles an “anything that tears” paper grade, but capture rates are quite low; enhancement of this program is a clear priority.

MWCC is unique in the state in its operation of an on-campus wood-fired energy plant. The school chips and uses clean wood waste as fuel in this facility, and composts residual ash with other leaf and yard waste.

MWCC is not recycling beverage food or containers, which are banned from disposal under Massachusetts law. The campus recycling coordinator believes that students could be involved in a source-separated program

**Issues / Opportunities**

- **Containers:** The campus recycling coordinator believes that students could be involved in a source-separated collection program that would capture redeemable cans and bottles plus tin, and aluminum containers as a revenue source (directed to student activities or a local charity). But the remaining glass and plastic containers will be problematical. MWCC is far from markets for these materials, so that high transportation costs will be added to the costs that are incurred for handling and processing (revenue generation is out of the question in current markets). The school should investigate options to send these to a municipal recycling program, or possible milk-run collection with other generators in the region. Additional startup costs will be incurred to purchase hole-top recycling containers for use on campus.
- **Mixed Paper:** Based on current capture rates and discussion with MWCC’s recycling coordinator, we believe that mixed paper recovery can be increased significantly on the MWCC campus. Additional containers will be the key to this result, placed in classrooms and student common areas. Low-cost education tools and additional signage will also help bring capture rates up to their potential.

**Impacts on Waste Disposal**

In 2002 MWCC recycled 20 tons of mixed paper and cardboard (its principal recycling streams), and disposed of approximately 150 tons of trash. Its recycling rate, excluding leaf and yard waste (leaf and yard waste are chipped and used on campus), is about 12%.

Addition of container recycling can be expected to add about 5% to the recycling rate. Based on industry estimates of campus waste composition, MWCC’s 20 tons of recycled fibers represent less than half of all fibers generated on campus. Therefore, we believe that more aggressive efforts to capture mixed paper can add another 10-15% to the school’s recycling rate, bringing ultimate capture up to at least 30% of the school’s waste stream (excluding leaf and yard waste).

**Mount Wachusett Community College**  
**Massachusetts Community/State College Recycling: Current Practices and Potential Modifications**

| Institution: Mt. Wachusett CC<br>Contact: Dave Pouliot |   | Phone: 978-632-6600 x.115  | Date:<br>Email:  |
|--|---|--|--|
| Material   | Current Practice  | Recommended Modifications  | Comments/Notes   |
| Mixed Office Paper (unshredded)                        | Collects in bags, into barrels, then into 10 yard frontload dumpster with OCC. All fiber mix. | Need to go after classrooms and common areas with additional containers, education, etc. | Good program, but could use education tools and signage. Est. volume could double.   |
| Confidential Documents                                 | Once a year purge handled by IRN  | Service could be more frequent   | The once a year purge seems a like a long time between real need. Volume over previous year jumped considerably  |
| Newspaper/Magazine Mix                                 | See above   |  | See above  |
| Cardboard  | Pick up by hand (facilities) on call. Goes into 10 yard dumpster with paper.                  | Program is working. Look for additional volume from cafeteria                            | Not as much volume as expected. Not sure cafeteria is involved as much as they could be.   |
| Other  | Incinerator ash is recycled into compost program  | No change  | Bottom ash recovered. Volume will increase as incinerator use grows.   |
| Beverage Containers                                    | None—maintenance staff picking out some redeemables.  | Set up program using student involvement   | Students needed to maintain quality. Could generate small revenues for student charity. Glass and plastic will be problems in Gardner (municipal possibilities?) |
| Tin Cans   | None  | See above  | See above  |
| Scrap Metal  | None  | Potential 1x or 2x per year purge  | Volumes are low. Must be some periodic generation.   |
| Wood Waste   | Yes   | None   | They recover wood for their wood energy system.  |
| Computers/Electronic Equipment                         | Yes. Re-sale handled internally; balance managed through IRN                                  | Confirm re-sale end markets.   | IRN program. Mostly monitors. Some concerns about the re-sale program. Where is stuff going? Are there liabilities?  |
| Fluorescent Lamps & Ballasts                           | Yes (IRN)   | None   | Volumes seem low, but recent re-lamping project may be the cause.  |
| Batteries  | Yes (IRN)   | Add vehicle and NiCads to the program  | None   |
| Surplus Property                                       | Yes   | None   | They do a good job here, especially with refurbishing/reuse.   |

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Phone: 978-632-6600 x.115

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| <b>Material</b>         | <b>Current Practice</b> | <b>Recommended Modifications</b>  | <b>Comments/Notes</b>  |
|-------------------------|-------------------------|---|--|
| Construction/Demolition | No                      | Need RFP and contract language.<br>Need to be clear on distinction between DCAM- and school-managed projects. | No policy to follow. They have interest. Successfully prodded carpet installer to recycle 6 tons of carpet from library renovation in 2002.. |

**Mount Wachusett Community College  
Cost of Recommended Recycling Program Enhancements**

**Fibers**

**Recommendation, Option 1:** Mixed paper plus cardboard to breakaway compactor, marketed to North Shore Recycled Fibers, Fitchburg mill.

| <b>Estimated Cost of Fiber Recycling Program w/ Breakaway Compactor, Mt Wachusett CC</b>     |                  |                  |
|--|------------------|------------------|
| <b>Item</b>  | <b>Units</b>     | <b>Value</b>     |
| Estimated Fiber Generation (MP + OCC)  | Tons/Yr          | 101              |
| Current Fiber Recovery   | Tons/Yr          | 20               |
| Additional Fiber Available for Recovery  | Tons/Yr          | 81               |
| Total Capture at 80% Recycling Rate  | Tons/Yr          | 80.8             |
| Cost of Current Fiber Recycling Program  | \$\$/Yr          | \$1,260          |
| Breakaway Compactor  |                  |                  |
| Purchase   | \$\$             | \$13,845         |
| 4-Year Lease-to-Own  | \$\$/Yr          | \$4,217          |
| Rental, Breakaway Compactor Box  | \$\$/Yr          | \$1,440          |
| Haul to North Shore Fitchburg  | \$\$/Haul        | \$250            |
| Tons Per Haul to North Shore Fitchburg   | Tons/Haul        | 5.0              |
| Total Hauls Per Year   | Hauls/Yr         | 16.2             |
| Total Annual Cost of Hauls to North Shore Fitchburg  | \$\$/Yr          | \$4,040          |
| Revenue, Mixed Paper + OCC   | \$\$/Ton         | \$25             |
| Total Annual Revenues, Mixed Paper + OCC   | \$\$/Yr          | \$2,020          |
| <b>Avoided Disposal Cost (Haul + Tip)</b>  | <b>\$\$/Ton</b>  | <b>\$125</b>     |
| <b>Avoided Disposal Cost, Current Recycling Program</b>                                      | <b>\$\$/Yr</b>   | <b>\$2,500</b>   |
| <b>Avoided Disposal Cost, Total with Aggressive Recycling Program</b>                        | <b>\$\$/Yr</b>   | <b>\$10,100</b>  |
| <b>Annual Recycling Cost(Revenue) with Compactor Purchase</b>                                | <b>\$\$/Year</b> | <b>\$3,460</b>   |
| <b>Annual Recycling Cost(Revenue) with 4-Year Lease-to-Own</b>                               | <b>\$\$/Year</b> | <b>\$7,677</b>   |
| <b>Net Annual Cost(Savings) after Avoided Disposal Cost, Purchase</b>                        | <b>\$\$/Year</b> | <b>(\$6,640)</b> |
| <b>Net Annual Cost(Savings) after Avoided Disposal Cost, 3-Yr LTO</b>                        | <b>\$\$/Year</b> | <b>#REF!</b>     |
| <b>Net Annual Cost(Savings) after Avoided Disposal Cost, 4-Yr LTO</b>                        | <b>\$\$/Year</b> | <b>(\$2,423)</b> |
| <b>Net Annual Cost(Savings) after Avoided Cost, Accounting for Current Program, Purchase</b> | <b>\$\$/Year</b> | <b>(\$5,400)</b> |
| <b>Net Annual Cost(Savings) after Avoided Cost, Accounting for Current Program, 4-Yr LTO</b> | <b>\$\$/Year</b> | <b>(\$1,183)</b> |

**Recommendation, Option 2:** Mixed paper plus cardboard to 10 CY front load dumpster, marketed to North Shore Recycled Fibers, Fitchburg mill.

| <b>Estimated Cost of Fiber Recycling Program w/ 10 CY Front Load, Mt Wachusett CC</b> |                  |                 |
|---|------------------|-----------------|
| <b>Item</b>   | <b>Units</b>     | <b>Value</b>    |
| Estimated Fiber Generation (MP + OCC)   | Tons/Yr          | 101             |
| Current Fiber Recovery  | Tons/Yr          | 20              |
| Additional Fiber Available for Recovery   | Tons/Yr          | 81              |
| Total Capture of MP + OCC at 80% Recycling Rate                                       | Tons/Yr          | 80.8            |
| Cost of Current Fiber Recycling Program   | \$\$/Yr          | \$1,260         |
| Rental, Front-Load Dumpster (rental included in pickup cost)                          | \$\$/Yr          | \$0             |
| Haul to North Shore Fitchburg (includes front load rental)                            | \$\$/Haul        | \$100           |
| Tons Per Haul to North Shore Fitchburg  | Tons/Haul        | 0.5             |
| Total Hauls Per Year  | Hauls/Yr         | 162             |
| Total Annual Cost of Hauls to North Shore Fitchburg                                   | \$\$/Yr          | \$16,160        |
| Revenue, Mixed Paper + OCC  | \$\$/Ton         | \$25            |
| Total Annual Revenues, Mixed Paper + OCC  | \$\$/Yr          | \$2,020         |
| <b>Avoided Disposal Cost (Haul + Tip)</b>   | <b>\$\$/Ton</b>  | <b>\$125</b>    |
| <b>Avoided Disposal Cost, Current Recycling Program</b>                               | <b>\$\$/Ton</b>  | <b>\$2,500</b>  |
| <b>Avoided Disposal Cost, Total with Aggressive Recycling Program</b>                 | <b>\$\$/Yr</b>   | <b>\$10,100</b> |
| <b>Annual Recycling Cost</b>  | <b>\$\$/Year</b> | <b>\$14,140</b> |
| <b>Net Annual Cost(Savings) after Avoided Disposal Cost</b>                           | <b>\$\$/Year</b> | <b>\$4,040</b>  |
| <b>Net Annual Cost(Savings) after Avoided Cost, Accounting for Current Program</b>    | <b>\$\$/Year</b> | <b>\$5,280</b>  |

## Beverage Containers

**Recommendation:** Commingled collection into plastic bags in recycling containers. Bagged containers placed in 30 CY covered rolloff. Rolloff to E.L. Harvey & Sons.

| Estimated Cost of Beverage Container Recycling Program, Mt. Wachusett CC |                |                |
|--|----------------|----------------|
| Item   | Units          | Value          |
| Estimated Container Generation   | Tons/Yr        | 15             |
| Rolloff Container  |                |                |
| Purchase   | \$\$           | \$6,000        |
| Lease-to-Own, 4 Yr   | \$\$/Yr        | \$1,826        |
| Haul to E.L. Harvey  | \$\$/Haul      | \$200          |
| Tons per Haul to E.L. Harvey   | Tons/Haul      | 2.0            |
| Per Ton Processing Charge  | \$\$/Ton       | \$70           |
| <b>Annual Cost with Rolloff Purchase</b>                                 | <b>\$/Year</b> | <b>\$2,550</b> |
| <b>Annual Cost with 4 Year Lease-to-Own</b>                              | <b>\$/Year</b> | <b>\$4,376</b> |

**Recommendation:** Purchase additional recycling containers

| Cost of Recommended Recycling Supplies, Mount Wachusett CC                                    |        |           |                |
|---|--------|-----------|----------------|
| Item  | Number | Unit Cost | Total Cost     |
| Deskside recycling bins   | 35     | \$4.50    | \$158          |
| 95-gallon wheeled recycling containers with hole tops for containers (Schaefer or equivalent) | 15     | \$100     | \$1,500        |
| 95-gallon wheeled recycling containers with slot tops for paper (Schaefer or equivalent)      | 15     | \$100     | \$1,500        |
| <b>Total</b>  |        |           | <b>\$3,158</b> |

| Cost to Purchase Additional Paper Recycling Containers, WSC               |        |           |                |
|---|--------|-----------|----------------|
| Item  | Number | Unit Cost | Total Cost     |
| 95 Gallon Schaefer containers (or equivalent) w/<br>slot top for paper    | 32     | \$100     | \$3,200        |
| Rubbermaid "Slim Jim" recycling containers (or<br>equivalent) w/ slot top | 24     | \$50      | \$1,200        |
| <b>Total Cost for Additional Containers</b>                               |        |           | <b>\$4,400</b> |